

REMARKS

Claims 1-6 are pending in the application. Claim 1 is amended with this response. Reconsideration of the application is respectfully requested based on the following remarks.

I. REJECTION OF CLAIMS 1-6 UNDER 35 U.S.C. § 102(b)

Claims 1-6 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent Publication No. 2002/0072198 (Ahn). Withdrawal of the rejection is respectfully requested for at least the following reasons.

- i. ***Ahn does not teach selectively forming a first insulation material in the trench and not on the mask to fill a lower part of the trench so as to reduce the aspect ratio of the trench, as recited in claim 1.***

Claim 1 is directed to a method for fabricating a trench isolation structure, and comprising forming a trench in a substrate. The trench is then filled *selectively* with a first insulation material in a lower part of the trench so as to reduce an aspect ratio of the trench. In doing so, ***the insulating material is deposited in the trench, but not on the mask.*** Ahn does not teach this feature.

As illustrated in Figs. 5-6, Ahn discloses formation of a trench 121 in a substrate 100, wherein the trench 121 is formed via a mask 103 residing on the substrate. A SiN liner layer 107 is then formed in the trench, followed by a thin oxide layer 109 formed over the nitride liner in both the trench 121 and over the mask 103. According to Ahn, the thin oxide layer 109 serves as a buffer layer. (See, e.g., Fig. 6 and [0032]). A first buried oxide layer 119 is then ***formed over both in the trench 121 and over the mask 103, as can be clearly seen in Fig. 6.*** The buried oxide layer 119 is then etched back, as illustrated in Fig. 7, and a second buried oxide layer 149 is later formed in the trench to fill the trench, as illustrated in Fig. 9.

As can be seen from Fig. 6 and the corresponding description, the first buried

oxide layer 119 is not selectively formed only in the trench and not on the mask, as recited in claim 1. While paragraph [0032] of the Ahn states that the buried oxide layer could be formed to not fully fill the trench (see [0032], lines 11-12), ***such partial filling of the trench would still result in formation of oxide on the mask during the partial filling, due to the presence of the thin oxide layer 109 on the mask.***

Therefore in either case the prior art reference does not teach or suggest formation of the first insulating material in the trench ***and not on the mask*** as claimed.

Consequently, Ahn fails to anticipate the invention of claim 1. Accordingly, withdrawal of the rejection is respectfully requested.

ii. Ahn does not teach a conditioning process after the selective deposition of the first insulation material to compact the first insulation material, as recited in claim 3.

In claim 3, after the selective deposition of the first insulation in the trench, and not on the mask, a conditioning process is performed. As further recited in claim 3, the conditioning process acts to compact the first insulation material in the trench. Ahn neither teaches nor suggests such a conditioning process. Therefore claim 3 is not anticipated by the cited reference for at least this additional reason. Accordingly, withdrawal of the rejection is respectfully requested.

II. CONCLUSION

For at least the above reasons, the claims currently under consideration are believed to be in condition for allowance.

Should the Examiner feel that a telephone interview would be helpful to facilitate favorable prosecution of the above-identified application, the Examiner is invited to contact the undersigned at the telephone number provided below.

Should any fees be due as a result of the filing of this response, the Commissioner is hereby authorized to charge the Deposit Account Number 50-1733, REINP107US.

Respectfully submitted,

ESCHWEILER & ASSOCIATES, LLC

By /Thomas G. Eschweiler/

Thomas G. Eschweiler
Reg. No. 36,981

National City Bank Building
629 Euclid Avenue, Suite 1000
Cleveland, Ohio 44114
(216) 502-0600